Q. 1 Give the occurance, biological role and structural features of ~~st~~ sterol.

→

Occurance :-

- sterols are found in animals and plant and fats.
- The main source of cholesterol are brain spinal cord, gallstone & fish liver oil.
- orgasterol occurs in both plants and animals.

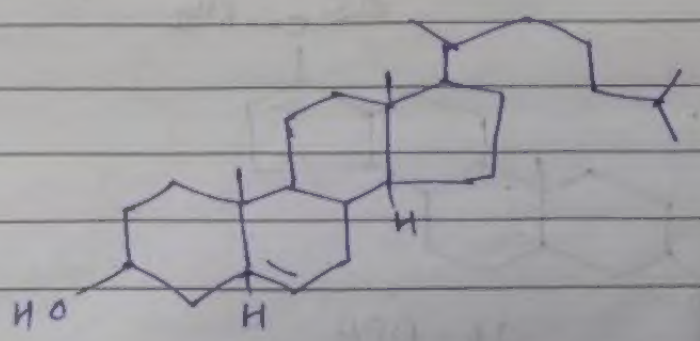
Biological role :-

- In the body, the mejority of cholesterol is associated with cell membranes.
- Where it hay an important role in maintaining fluidity
- Polar - OH group is oriented towards aqueous media inside cell.

structural features :-

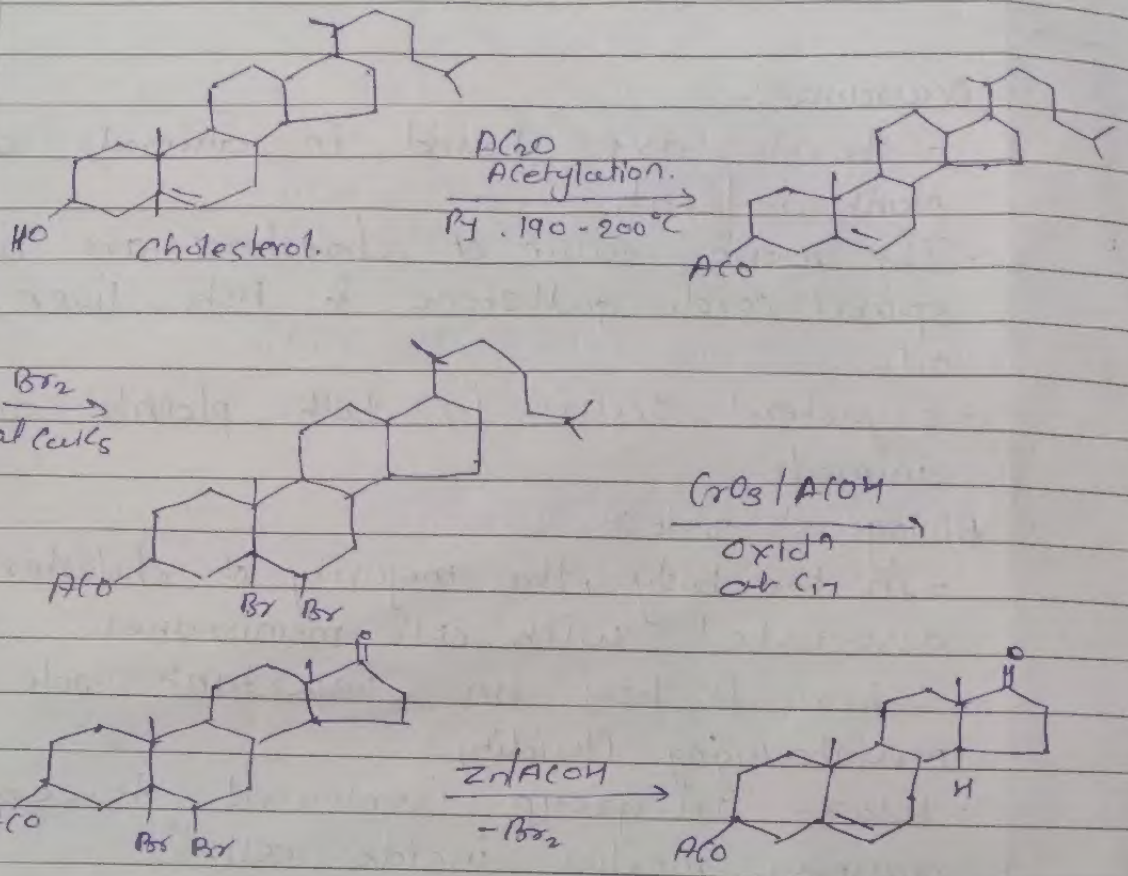
- cholesterol of 27 carbons atom and only one -OH group.
- In 3-position -OH group is modified to increase the hydrophobicity of the molecule.
- Position 3-OH group is β- oriented.

Structure :-



Q. 2. Synthesis of 16 DPA from cholesterol.

→



16 - DPA

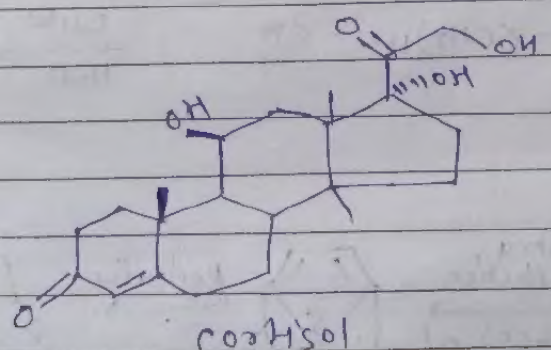
Q.3 Discuss the occurance, biological role and structural features of corticosteroids.

→

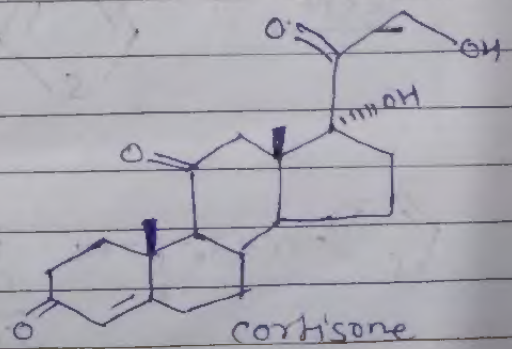
Occurance:
- The oderonal glands of mammals are located near each kidney and consist of two distinct parts medulla and cortex.
- The medulla produces aderenaline while cortex produced corticosteroids.

Biological role.
- They are used to reduce inflammation in the body.
i.e. they act as anti inflator.
- The deficiency of harmones produces a number of disterbance in metabolism of water, electrolyte carbohydrate and proteins.
- Mineralocorticoids are responsible for maintaing sodium - pottasium balance in body.
- Over production of adrenal substanees in children results in precocious sexual development.

structural features.



cortisol



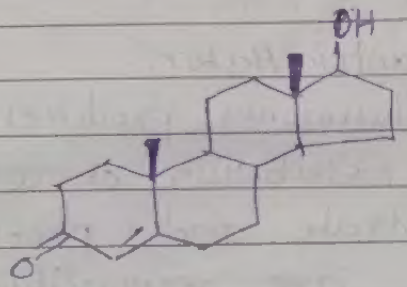
cortisone

- Presence of $\alpha_3\beta$ unsaturated ketonic group (double bond bln C_4-C_5 & ketonic group at C_3)
- Presence of ketonic group at C_{20} & other functional group like -OH at C_{21} increases mu. retension and for carbohydrate metabolism.

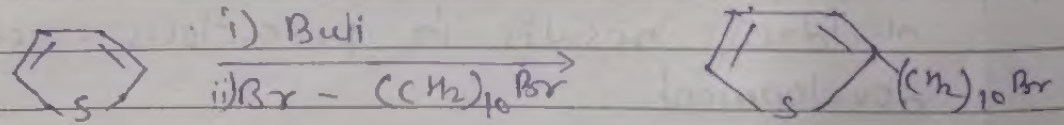
Q.6. Draw structure of testosterone. How is exaltone synthesized.

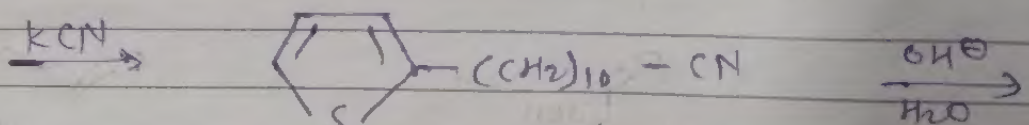
→

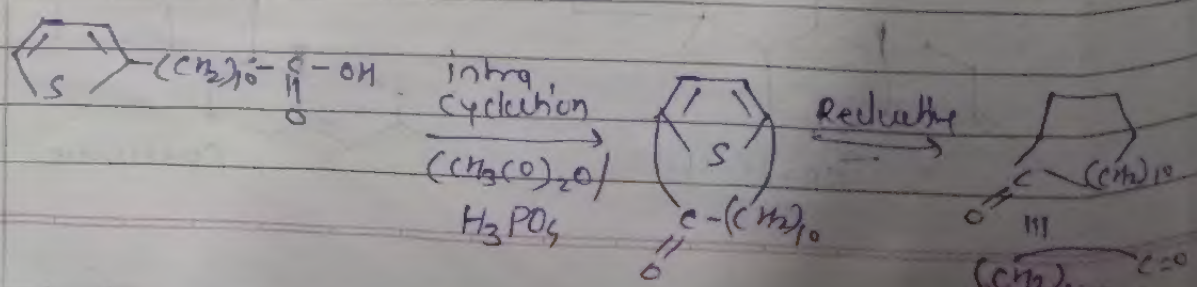
structure of testosterone



synthesis of exaltone.







Q 5 Ceive sources and biological importance of vit B6.

→

Sources :-

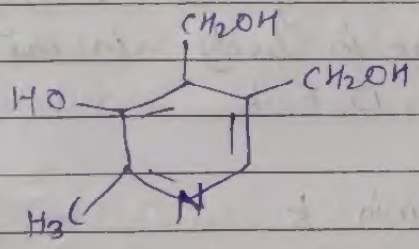
- vitamin B6 occurs in cereals, molasses, yeast.
- other sources are rice polishing, maize, milk egg, fish liver and fresh vegetables.

Biological importance :

- It is useful for the treatment of nausea and vomiting during pregency.
- Used to treats dermatitis.
- Prevents nervous and skin disorders.
- It help in metabolism of fats and proteins.

- e.g. pyridoxine.

Structure :



Q.6. How are vitamines classified & Give synthesis of vitamin k and state its biological importance.

→

-Vitamin are organic substance required in very small amounts of growth and maintenance of health of all animals.

Q.7.

They are mainly classified into two groups:

① Water soluble vitamin.

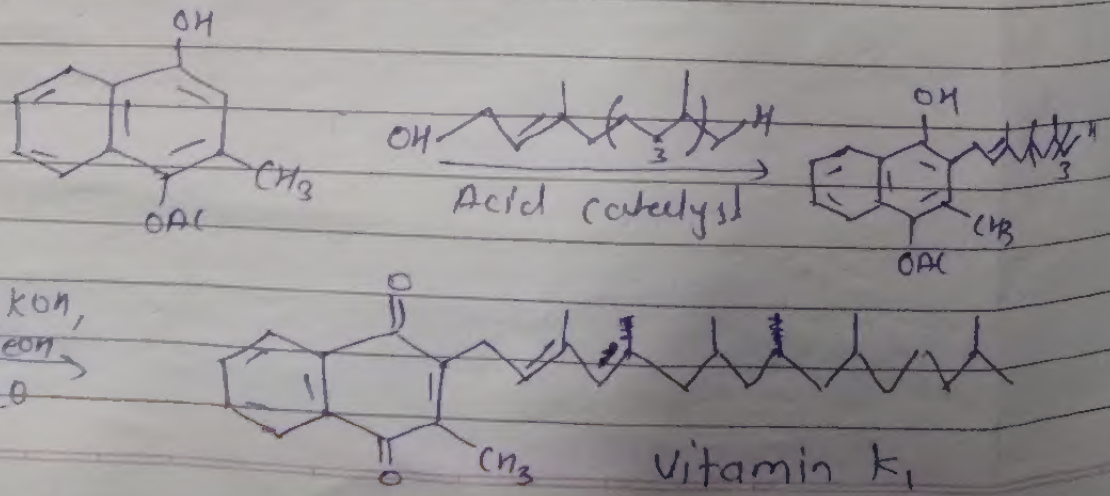
- They are soluble in to water and part of them is lost during heating (above 60°C)
- They can't be stored in body and hence have to be taken every day.

e.g vitamin B and vitamin C.

② Fat soluble vitamin:

- They are soluble in organic solvent and fats.
- They are not easily lost during cooking and can be store in body in the liver.
- Ex. vitamin - A, D, E, K

Synthesis of vitamin k.



Vitamin K_1

Modern

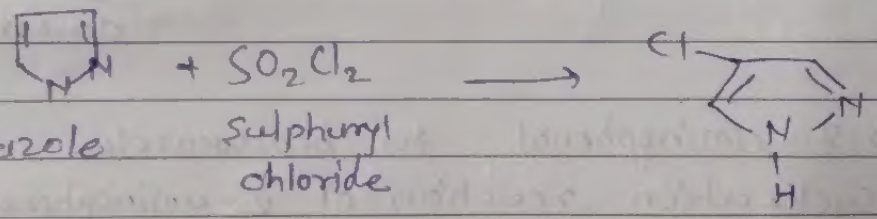
Biological importance:
- Helps in clotting of blood.
- Normal functioning of liver
- Prevention of post operative haemorrhage.

Q7. Explain. Electrophilic substitution of pyrazole take place at position 4, Justify your answer on basis of stability of intermediate.

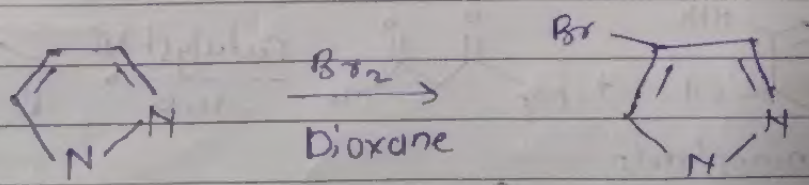
→

Pyrazole are subjected to electrophilic substitution at attack take place at position 4.

① chlorination: It take place in presence of free Cl_2



② Bromination:



4-bromo pyrazole.

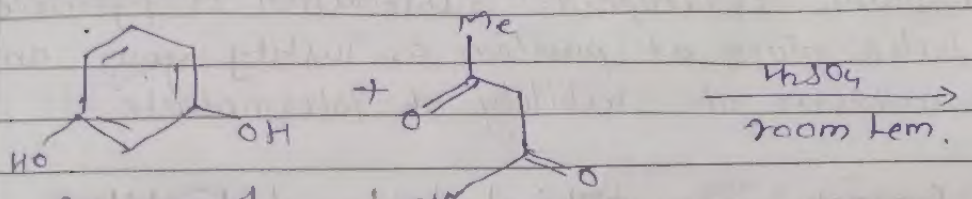
Q.8. Conversion

i) Resorcinal to Caumarin.

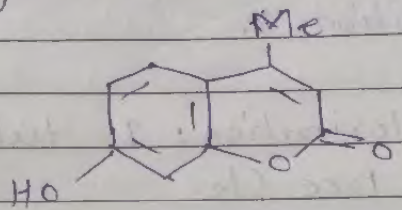
ii) 2 - aminophenol to benzoxazole.

→

i) Resorcinal to Caumarin.



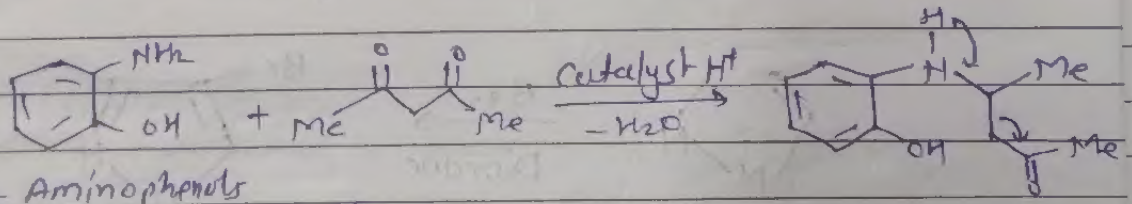
Resoranol Ethyl acetoacetate



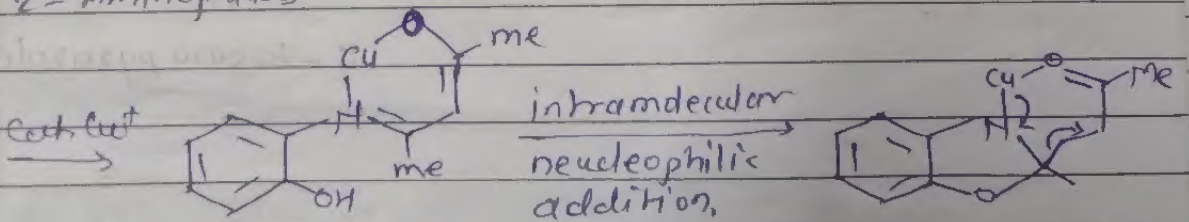
7- hydroxy 4- methyl caumarin.

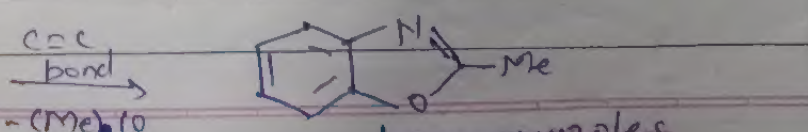
ii) 2- aminophenol to benzoxazole.

- Cyclization reaction of 2-aminophenols with β-diketones catalyzed by cl combination of Brosted acid and CuI give verrious 2- substituted benzoxazole.



2 - Aminophenols

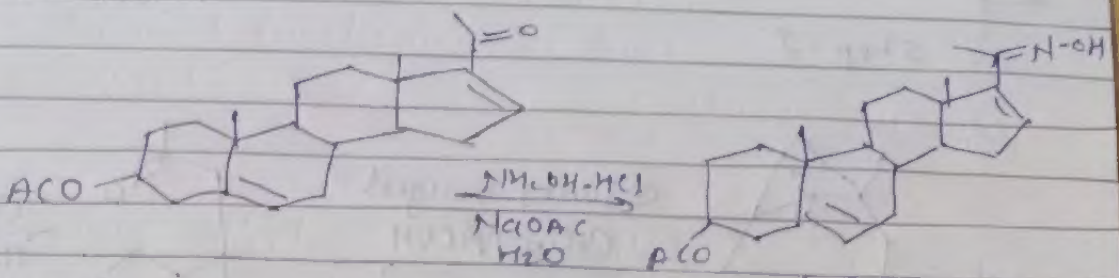


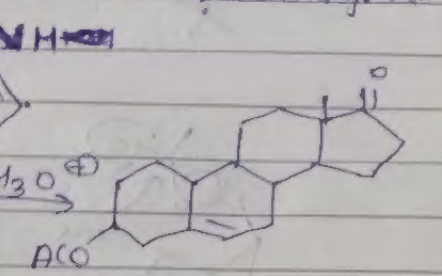


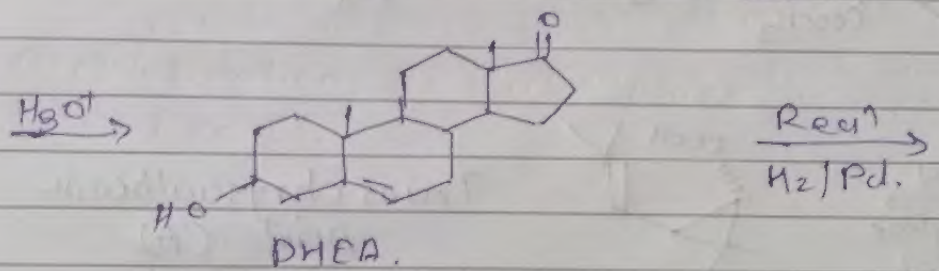
benzoxazoles

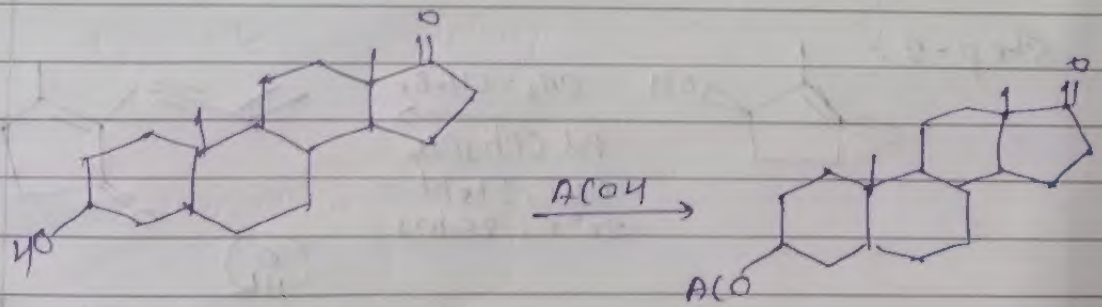
Q.9 How is androsterone synthesized from 16-DPA

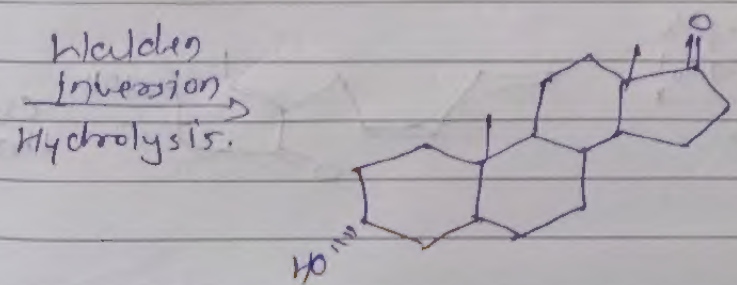
→











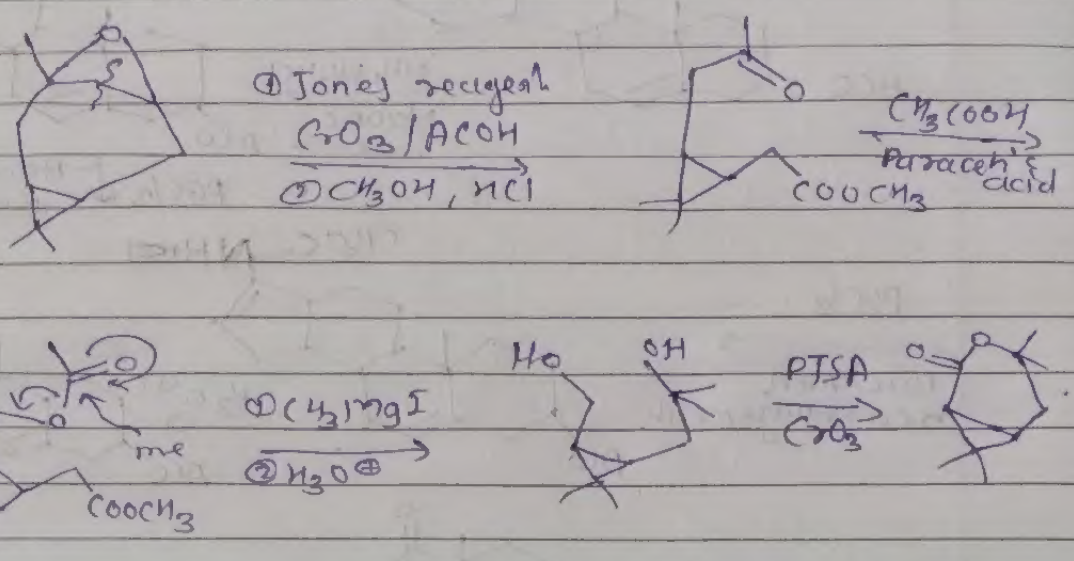
Androsteron.

GoodLuck | Page No.
Date

Q.10 Give the synthesis of pyrethrin - I

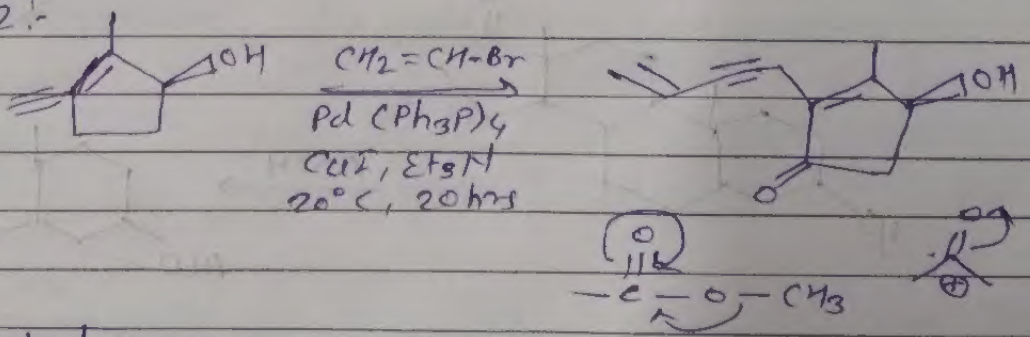
→

Step - I

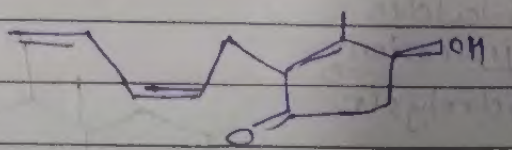


Trans chrysanthemic Acid (A)

Step - 2 :-



Activated Zn, H_2
dust, I propanol
100°C, 30 hrs



(S)-Pyre-Hirrolone (B)

Step - III :-